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**Subject:** 1.) Okla. lawmaker seeking interim study on quakes 5/26/15 2.) Okla. lawmaker questions timing of quake observatory closure 5/20/15 3.) Texas rejects some injection wells as tremors continue 5/11/15

## Okla. lawmaker seeking interim study on quakes

Mike Soraghan, E&E reporter

EnergyWire: Tuesday, May 26, 2015

Oklahoma lawmakers didn't discuss earthquakes in their legislative session this year, despite the hundreds of small to midsized quakes that have rocked the state.

But a state representative plans to ask for them to study it again while the state Legislature is out.

Rep. Jason Murphey (R) of Guthrie said he will make a request to House Speaker Jeff Hickman (R) to set up an "interim legislative study," as was done after last year's session. Murphey, who represents one of the more seismically active districts in the state, said he expects his request to be granted.

"It would be hard to suggest that this wouldn't be appropriate," Murphey said.

The Oklahoma Geological Survey (OGS) recently joined outside seismologists in saying that the huge increase in the state's earthquakes is likely caused by deep injection of wastewater from oil and gas operations in the state ([Greenwire](#), April 21).

Murphey said he thought that could open the door to more legislative action. The state Corporation Commission, overseen by three elected commissioners, is in charge of regulating oil and gas in the state. Staff at the commission is currently focused on determining whether wells in earthquake-prone areas have been drilled too deep.

Corporation Commission officials, though, have said some aspects of the situation are beyond their control and in the hands of the state Legislature. Though lawmakers didn't debate the earthquake issue this year, they did move to protect industry from municipal ordinances.

Murphey suggested splitting OGS from the university after *EnergyWire* reported that agency scientists were pressured by oil executives with ties to the university ([EnergyWire](#), May 11).

The cause of the quakes has been a tricky subject for both scientists and politicians in Oklahoma, where petroleum production is woven into the social and economic fabric. The state Capitol grounds sport a working oil well, and state officials estimate 1 in 5 jobs is tied to the oil and gas business.

Until recently, Gov. Mary Fallin (R) said she believed most of the earthquakes are natural. But when the OGS shifted its position, she did as well.

# Okla. lawmaker questions timing of quake observatory closure

Mike Soraghan, E&E reporter

EnergyWire: Wednesday, May 20, 2015

The University of Oklahoma is closing an earthquake monitoring facility amid unprecedented swarms of earthquakes in the state that have been linked to oil and gas activity.

The closure, which according to published reports will likely lead to the departure of two staffers, comes in the wake of reported attempts by Continental Resources Inc. founder Harold Hamm to get university employees fired. Bloomberg News [reported](#) last week that Hamm wanted "certain scientists" at the Oklahoma Geological Survey (OGS) "dismissed" for their reporting on earthquakes.

University President David Boren and other school officials have said in response that no OGS employees have been "dismissed." But their statements might not cover the closure of a facility that caused employees to resign.

University officials say the closure is simply a cost-cutting move.

"By relocating staff to Norman, and monitoring the seismic readings centrally, the OGS can realize real cost savings and perform its functions more efficiently," said university spokeswoman Catherine Bishop. "This was a difficult decision due to the long history of the observatory, but one that will result in improved monitoring and reporting of Oklahoma earthquake activity."

But a state legislator whose constituents are tired of the shaking says closing the facility raises serious questions.

"The timing is absolutely terrible," Rep. Jason Murphey (R-Guthrie) told *EnergyWire* in a phone interview. "These types of decisions need to be made in an atmosphere where there isn't any question about the motives of those making them."

Murphey has suggested splitting OGS from the university because of the conflict of interest he sees with Boren serving on Continental's board of directors.

## What's on the chopping block

OGS is part of the university, and its offices are at the school's main campus in Norman, Okla. But for years it has run the Leonard Geophysical Observatory outside Tulsa. It was built in the 1960s. In the 1990s, OGS hosted Soviet officials there who were monitoring U.S. nuclear testing as part of an arms treaty.

Two staffers work there now, research scientist Amie Gibson and lab technician Jake Nance.

Of late, Gibson's main task has been to analyze as many as possible of the state's hundreds of earthquakes. Using readings from numerous seismic monitors, she assigns precise locations and depths to the quakes, then posts them to the agency website. Delays in posting details of the quakes on nights and weekends have led to complaints from people who felt them.

Last year, OGS "located" 5,417 earthquakes, an average of 15 a day. Of those, 585 were magnitude 3 or greater.

In a letter in mid-April, OGS employees were told, "After an ongoing evaluation of operations at the Geophysical Laboratory in Leonard, Okla., the decision has been made to close that facility, effective July 15, 2015."

A [recent story](#) about the closure in *The New Yorker* said that "Gibson and Nance ... will no longer work for the OGS, as no effort has been made to allow them to work close to their families and homes in the Leonard area."

OGS and the observatory are part of the Mewbourne College of Earth and Energy, which has been overseen by Dean Larry Grillot. Grillot is retiring this year.

Last July, Grillo met with Hamm, who reportedly sought the dismissal of some OGS scientists because of their handling of the earthquake issue. Hamm is a major donor to the school, and Boren sits on Continental's board of directors.

"Mr. Hamm is very upset at some of the earthquake reporting to the point that he would like to see select OGS staff dismissed," Grillo wrote in a July 16, 2014, email to colleagues at the university, according to Bloomberg.

Hamm also expressed an interest in joining a search committee charged with finding a new director for the geological survey, according to Grillo's email. And, the dean wrote, Hamm indicated that he would be "visiting with Governor [Mary] Fallin on the topic of moving the OGS out of the University of Oklahoma."

On the same day, Hamm met with Boren and discussed the committee that had been selected to pick a new OGS director. Then-OGS Director Randy Keller was in the process of retiring.

A Continental spokeswoman told Bloomberg the company had no comment and did not respond to a follow-up request from *EnergyWire*.

Grillo told Bloomberg that no one was dismissed from OGS and he never discussed Hamm's displeasure with OGS staffers.

Bloomberg also reported that a new director for OGS, Jeremy Boak, will start work in July. Boak has been working as director of the Center for Oil Shale Technology and Research at the Colorado School of Mines.

It was not the first time that Hamm had weighed in about OGS's handling of earthquake issues. In September 2011, an oil and gas industry official told Grillo that Hamm was seeking a meeting with Boren to discuss the "public relations" effects of research linking quakes to hydraulic fracturing. In 2013, state seismologist Austin Holland was summoned to Boren's office for "coffee" with Boren and Hamm after OGS joined in a statement blaming wastewater injection for the surge in earthquakes in the state (*EnergyWire*, April 9).

Hamm has said he wasn't trying to bully Holland when he sought the meeting in 2013, but was simply trying to learn what proof the scientist had for saying hydraulic fracturing was causing earthquakes (*EnergyWire*, May 11).

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## Texas rejects some injection wells as tremors continue

Mike Lee, E&E reporter

EnergyWire: Monday, May 11, 2015

Texas oil and gas regulators have turned down two permits for waste disposal wells this year under the state's new rules aimed at preventing man-made earthquakes and ordered tests at five other wells last week, amid a growing debate about the role of energy production in triggering seismic events.

A magnitude-4 earthquake struck Thursday near Venus, 30 miles southwest of Dallas. It was the largest earthquake to hit the region in recent years and one of 23 to strike within 12 miles of Venus since 2009, according to seismic researchers at Southern Methodist University. A string of more than 20 earthquakes struck near Azle, Texas, between November 2013 and January 2014.

The state Railroad Commission ordered underground tests at five wells located within a 5.6-mile radius of the Venus incident, under adopted rules in November aimed at preventing earthquakes caused by the disposal wells used in the oil and gas industry. The companies that operate the wells agreed to voluntarily close them, the commission said in a news release.

The state Railroad Commission adopted rules in November aimed at preventing earthquakes caused by the disposal wells used in the oil and gas industry. The commission "essentially denied" permits for wells proposed by [ConocoPhillips](#) in Andrews County in April and [Cumming Company Inc.](#) in Palo Pinto County in March, a spokeswoman said in an email.

The commission has approved 314 disposal wells since the regulations took effect.

"The rules are working as designed to protect the public and natural resources," commission spokeswoman Ramona Nye wrote.

Scott Anderson, a senior policy director for the Environmental Defense Fund, agreed that the rules were functioning as expected, but questioned whether the state should do more. The earthquake rules apply only to new permits, not to existing disposal wells.

"What percentage of them may have been permitted based on inadequate geologic data? What percentage may be leaking as a result?" Anderson wrote in an email.

Surveys showed there had been earthquakes within a 5.6-mile radius of the Cumming Co.'s proposed well in Palo Pinto County. In the Andrews County case, ConocoPhillips declined to provide additional subsurface maps the commission requested. A ConocoPhillips spokeswoman said the company withdrew its application for business reasons; Cumming did not return a phone call seeking comment last week.

The commission's staff delayed a permit for a third well while it asked for more information. The staff approved it after determining that the seismic event it spotted was actually caused by a refinery explosion.

Texas, Oklahoma and other oil-producing states have been under pressure -- including calls to penalize oil companies and fund more seismic monitoring -- to prevent the earthquakes that have come to be associated with shale drilling. So many have occurred that the U.S. Geological Survey is working on new guidelines for predicting man-made earthquakes ([EnergyWire](#), April 23).

Most of the earthquakes have been triggered by the injection of wastewater deep into the ground, which can cause seismic faults to slip and trigger an earthquake. Hydraulic fracturing -- the process of breaking up rocks with a mix of water and chemicals -- isn't thought to contribute directly to most of the events, but it produces large amounts of wastewater.

The Railroad Commission rules require companies to check the USGS database for historical earthquakes within 5.6 miles of a proposed disposal well. If any historical tremors are found, the commission staff can require the operator to provide more information; it can also alter or cancel the permits for wells shown to be linked to earthquakes.

The SMU team published a paper in April saying injection wells and other gas-production operations are the "most likely" cause of the Azle earthquakes ([GreenWire](#), April 21).

SMU researchers say they'll investigate Thursday's earthquake near Venus and are trying to determine how much detection equipment they can send to the area. No injuries were reported, but local emergency management officials said on Twitter that two homes had foundation damage.

Venus is in Johnson County, which is among the top gas-producing counties in Texas. It's also been the site of man-made earthquakes. In 2009, SMU researchers published a peer-reviewed scientific paper linking a string of earthquakes near Cleburne, the county seat, to oil and gas waste disposal.

More recently, SMU has been monitoring tremors near Midlothian, about 8 miles from Venus, the SMU team said in a statement.

"I don't think any of us was surprised by Thursday's event," associate professor Heather DeShon said in the statement. "There have been a series of magnitude 3 and greater earthquakes in the Johnson County area. If you have movement on a fault and change the stresses, you increase the likelihood of additional earthquakes. In other words, one earthquake frequently leads to another."

DeShon and other SMU professors argue that the Venus quake shows the need for more research and data collection.

State legislators told the *Fort Worth Star-Telegram* they'll add \$4.4 million for earthquake research to a supplemental budget bill, a move that could free up the funds by the middle of the summer. The budget rider would pay \$2.47 million for equipment, including 22 permanent seismograph stations, and \$2 million for data analysis.

